6
NEVER MIND THE QUANTITY, FEEL THE DEPTH

Professor Bill Lucas
Director, Centre for Real-World Learning,
University of Winchester

Introduction

There's nothing like a large numeric target to motivate ministers and their civil servants. And the idea of three million apprenticeships is just that. An audacious goal for England. If it motivates all those involved – employers, colleges, training providers, curriculum designers, teachers, coaches, mentors and apprentices – really to understand what an outstanding apprenticeship experience is, then the target will have served its purpose. But if in 2020 we look back and see it as mere work-based learning flag-waving it may have ended up damaging the brand of apprenticeships.

This chapter takes us into the engine room of apprenticeship. It explores the distinctive features of the apprentice's journey in terms of its pedagogy, the teaching she or he receives, and the learning experiences which are offered. To do so, it draws on research (Lucas, Claxton and Spencer, 2012; Lucas and Spencer, 2015) which, to continue the metaphor of a ship, looks in more detail at the components of the engine – the crank shaft bearing, pistons and drive shafts as it were - to be able to really understand what these are, and what anyone delivering apprenticeships needs to understand if the outcomes are going to be, to use that sometimes lazily used word, 'world-class'.

A theory of change

Unless we change the way we approach apprenticeships it is foolish to think for a moment that we will dramatically increase their numbers and significantly improve their quality. We can't simply assume that by doing more of the same, with the

exception of the new employer role in specifying standards and contributing to a levy, we will actually make a step change in what we are doing. If we are going both to expand the number and dramatically increase the quality of apprenticeships we need a theory of change, a cunning plan.

Let's start by reminding ourselves about what apprenticeships are. Our definition is:

> *An apprenticeship is a job with significant inbuilt learning designed to prepare the apprentice for future employment, employability and active citizenship of a high quality. (Lucas and Spencer, 2015)*

This compares to the relatively encouraging one offered by government:

> *An apprenticeship is a job that requires substantial and sustained training, leading to the achievement of an apprenticeship standard and the development of transferable skills. (Department of Business, Innovation and Skills).*

The problem with the BIS definition is that, despite the interesting development of the phrase 'transferable skills', critically important if apprentices are going to function effectively in the real world, this subtlety all too easily gets lost and the definition becomes simplified as here in, at the time of writing, the most recent iteration from the House of Commons Library:

> *Apprenticeships are full-time paid jobs which incorporate on and off the job training. (Delebarre, 2015)*

Apprenticeships, like vocational education more generally, can either be positioned as a second class alternative to academic pathways, with a set of largely instrumental concerns about funding structures and delivery systems dominating discussions, or they can be offered as an ambitious, expansive and powerful alternative to academic routes, suitable for a wide range of learners and with a well-articulated pedagogy of their own. I argue that it is the second of these two routes that will enable England's system to be truly world-class. The focus now and over the coming years should be on really understanding how different kinds of apprenticeship learning can lead to the accomplishments we need in twenty-first-century apprentices. Figure 1 seeks to articulate a theory of change that might bring this about:

IF WE

- clearly articulate a set of expansive and contemporary outcomes for apprenticeships, as well as
- the knowledge and skills which are required, and

IF WE

- really understand the distinctive features of apprenticeships

THEN

- it will be much easier to select the best possible teaching and learning methods
- as well as the most effective assessment methods

SO THAT

- the quality of apprenticeships increases, and
- there are more higher-level apprenticeships

SO THAT

- more employers want to employ and support apprentices, and
- more young people choose the apprenticeship route rather than university or as part of an FE or HE pathway, and
- the UK has more and higher-quality apprentices.

FIGURE 1 Theory of change for improving quality of apprenticeships

Being clearer about outcomes

It is all too easy to get lost in the details of which skills are needed, what knowledge is helpful, and why this or that competence is more or less important. Each of these is a legitimate concern, but a preoccupation with each of them can all too easily distract those designing apprenticeships from the real task of being clear about what the bigger picture is.

There are six essential desirable learning outcomes of apprenticeship if we want to create a genuinely high quality offer:

1 Routine expertise – the essential competences required for a particular occupation.

2 Resourcefulness – the capacity to think and act in situations not previously encountered.

3 Craftsmanship – pride in a job well done and an ethic of excellence.

4 Functional literacies – literacy, numeracy, digital and graphical.

5 Business-like attitudes – customer and client-focused, entrepreneurial and aware of value for money, whether in for-profit, public sector or third sector roles.

6 Wider skills for growth – the dispositions and wider skills for a lifetime of learning and change.

All too often the focus defaults to the first and the fourth of these outcomes and the case for the effectiveness of apprenticeship is consequently diminished. For higher-level apprentices and the new degree apprenticeships, while the language of these six outcomes may need refining, we believe that the concepts are equally valid.

In the plethora of English government documents which exist about apprenticeships, there is a signal lack of ambition in terms of the point of apprenticeships. It is one (admirable) thing to seek to develop transferable skills (as per the definition cited on page 62); it is another to then ignore the implications of how you do this in almost every document produced.

But there is something else too. Apprenticeships have distinctive features which means that they are different from any other educational pathway:

1 Both on-the-job and off-the-job learning. This has now been agreed as 280 hours of guided learning with 100 hours (or 30 per cent, whichever is greater) delivered off the job as well as training to level 2 in maths and English.

2 The essentially social nature of apprenticeship learning. Even in a small enterprise, apprentices join a group of co-workers within a specific vocational group. They have real opportunities to learn from those around them who are more skilled.

3 The partnership arrangements between those providing the employment and learning. Employers, colleges, training providers, higher education institutions, professional bodies and others collaborate to ensure they provide learning for apprentices. This calls for high levels of coordination and, we believe, drawing from educational research, visibility of learning processes.

Figure 2 summarises the argument so far and seeks to redress this balance by introducing a range of teaching and learning methods which might be used.

Once you describe such a breadth of outcomes, along with the three core features of apprenticeships, it becomes clear that certain kinds of teaching and learning methods are likely to work best to deliver truly outstanding apprenticeship experiences.

Six desirable outcomes	Three key features	Learning methods that work
1 Routine expertise **2** Resourcefulness **3** Craftmanship **4** Functional literacies **5** Business-like attitudes **6** Wider skills for growth	**1** Learning on- and off-the-job **2** Learning from and with others **3** Visibility of processes	■ Watching ■ Imitating ■ Listening, transcribing and remembering ■ Trial and error, experimentation or discovery ■ Deliberate practice ■ Drafting and sketching ■ Assessment for learning ■ Teaching and helping ■ Conversation ■ Reflecting ■ Being coached and mentored ■ Real-world problem-solving ■ Making ■ Indiviual or collaborative enquiry ■ Thinking critically and producing knowledge ■ Competing ■ Simulation and role play ■ Games ■ In virtual environments ■ Seamlessly, blending virtual with face to face ■ On the fly

FIGURE 2 Desirable outcomes, key features and learning methods for a pedagogy of apprenticeship

But here is where even strong supporters of apprenticeships like me realise that in government documents there is a stunning omission – almost any detailed description of the learning and pedagogy which will be required to ensure that, as new standards are designed, the three million new starts planned will be anything other than low quality.

A pedagogy of apprenticeship

In the right hand column of Figure 2 is a list of tried and tested learning methods. But before we explore these, let's take a step back. When I said that there is no mention of pedagogy in government documentation about apprenticeships I was ever so slightly exaggerating. There are a few, but they are so tucked away, and so overwhelmed by descriptions of organizational processes, that they are lost. My favourite statement is tucked away on page eight of a statement about skills funding:

> *Learners must demand high quality pedagogy which will necessitate that stronger links are built between employers, teachers and teaching.*
> *(Department for Business, Innovation and Skills, 2014)*

The idea that learners would demand any such thing is patently absurd. It is a powerful reminder of how little interested government is in what goes on in the engine room of apprenticeships, with its pedagogy. I define pedagogy as the 'art, science, craft and nous of teaching and learning'. At its simplest it is about making the right choices of teaching and learning methods to ensure that learner, occupational context, prior experience, level and desired outcomes are aligned.

How you select the best pedagogy is different if you are teaching a class of nine-year-olds, an MBA or, in the case of this chapter, an apprenticeship. There is an idea that may be useful here: 'signature pedagogy'. First coined by Lee Shulman in 2005, it refers to the types of teaching and learning which most suit or match the way a specific profession or vocation operates:

> *Signature pedagogies make a difference. They form habits of the mind, habits of the heart and habits of the hand [...] signature pedagogies prefigure the cultures of professional work and provide the early socialization into the practices and values of a field. Whether in a lecture hall or a lab, in a design studio or a clinical setting, the way we teach will shape how professionals behave.*
> *(Shulman, 2005)*

So, for example, a signature pedagogy for developing apprentice engineers might involve problem solving, inquiry-based learning, project work, and real-time simulations – all using the engineering design process of prototyping and testing. It would not sit engineers in rows and ask them to learn things by rote or undertake mathematical tests in isolation or write essays.

I am not alone in seeing the gap between quality and rhetoric in the debate in England about apprenticeships. In 2013 the Commission on Adult and Vocational Teaching and Learning (CAVTL) raised expectations with regard to really understanding pedagogy in vocational education. It argued that:

> *We need to strengthen and make more visible the distinctive pedagogies of vocational teaching and learning.*

Let's go back to our six desired outcomes for a moment and think about implications for pedagogy.

Routine expertise

Learning how to become routinely expert at something is at the heart of apprenticeship. Apprentices clearly need to be able to do the job for which they have been trained, and demonstrate their routine expertise. Challenges to developing routine expertise in apprentices include:

- adequate opportunities to practise and the motivation of the learner to keep practising until the skill has become routine;
- the availability of an 'expert' teacher/coach;
- the skill of the 'expert' as a 'teacher', especially their ability to articulate the important steps of a process and make tacit processes 'visible'.

Resourcefulness

This desirable outcome is about being able to deal with the non-routine and unexpected, about transferable skills. While reliable skill is essential, in most workplace situations things happen which are beyond the routine. As apprentices progress, so they will need to be able to stop to think and draw on resources other than their own knowledge of the routine. Challenges to developing resourceful apprentices include:

- having adequate opportunities and time to practise skills in unfamiliar settings;
- being allowed to develop such a higher-order capability when there is an emphasis on productivity;
- having an expert teacher to suggest resourcefulness strategies.

Craftsmanship

Craftsmanship involves an unambiguous aspiration in a worker or learner for excellence. With it comes the sense of pride in a job well done. The idea of craftsmanship is central to apprenticeship and was at the heart of the medieval forms of apprenticeship in England. In Germany the term 'meister' carries this meaning. For Richard Sennett, author of *The Craftsman* (2009), the desire to do a job well for its own sake is a basic human impulse. Everyone, he argues – the computer programmer, the doctor, the parent and the citizen – can put into practice the values of craftsmanship. Matthew Crawford (2009) and Mike Rose (2004) similarly explore the satisfaction and pleasure individuals derive from the cognitive aspects of a job well done. The challenges to developing craftsmanship in apprentices include:

- the perceived opportunity / cost trade-off of doing a job fit for purpose, and doing a job perfectly with deadlines looming;

- peer pressure from other apprentices for learners not to appear too 'pedantic', and the availability of good role models;

- employers who may be more concerned with profit than with quality and potential wastage of material if something isn't 'quite right'.

Functional literacies

As well as being functionally literate in numeracy, literacy and ICT, apprentices also need a level of graphical and digital literacy. In England in 2012, Functional Skills became a mandatory part of all apprenticeship frameworks, replacing what were known as Key Skills. The role of Functional Skills has been further complicated by the latest requirement for all 16- to 19-year-old learners to study towards GCSE/level 2 maths and English if they have not already achieved a GCSE A*-C in these subjects. Developing apprentices' maths and English to level 2 brings some real challenges including:

- the small amount of day release time and guided learning hours available to apprentices;

- the availability of appropriately skilled staff in the workplace and off-the-job trainers to support the authentic development of maths and English;

- the ability of workplace staff to identify and articulate the Functional Skills they are using.

Business-like attitudes

This desirable outcome is about dealing with clients, suppliers and customers appropriately. Another word for it might be 'professionalism', a way of behaving, whatever your occupation. To act appropriately in the world of business, whether for- or not-for-profit, is an essential requirement of any apprenticeship. Developing business-like skills in apprentices brings some real challenges including:

- ensuring that the definition of business is set expansively to include both basic self-organisation and higher-level communication and work skills;

- deciding which sorts of business-like attitudes and skills count as important;

- providing opportunities for learners to develop if they are rarely client-facing.

Wider skills for growth

Across the world 'wider' skills are known by different names such as 'dispositions', 'attributes', 'capabilities' and so on, each one of which comes with a slightly different emphasis. As well as at work, apprentices need to be able to thrive at home and in the community. Within apprenticeships in England the Personal, Learning and Thinking Skills (PLTS) required at levels 2 and 3 are helpful. The Confederation of British Industry (CBI, 2012) has recommended that we should go further – clarifying what these wider skills are and measuring them.

Developing wider skills for growth in the workplace brings some real challenges including:

- balancing the needs of the apprentice as a learner and the requirement for him/her to be productive as a worker with reference to particular sectors and organisations;
- finding ways of assessing skills that go beyond the more routinely assessed tests of knowledge, physical control, manual dexterity or mental facility;
- ensuring that qualified and experienced employees and teachers model the skills required.

Each of these six desirable outcomes, in other words, brings with it questions about teaching and learning for any designer of an apprenticeship. The same is true with regard to its three distinctive features (as summarized in Figure 2).

On- and off-the-job learning

Apprentices learn both on-the-job through their employer and off-the-job at a college or with a learning provider, with the bulk of their learning importantly located within a workplace. Ofsted has also summarised some on-the-job learning activities which are valuable:

> *formal and informal training; placements within and outside the company to obtain experience and assessment evidence; mentoring by colleagues; attendance at trade shows; visits, participation in competitions, and manufacturer training. May include learning support visits.*
> *(Ofsted, 2010)*

The critical issue in terms of ensuring effective learning within an apprenticeship is the degree to which those responsible for the on-the-job elements talk to and understand those who provide the off-the-job learning. One mechanism which might provide a focus for such conversations is the Individual Learning Plan (ILP), the record of all the elements of an apprentice's planned learning. An ILP can be a very dull document full of little more than previous exam results and dates of specific courses. But it could be much more powerful as a prompt for desired

activities (such as mentoring and coaching) and a reflective space for learners to plan and review on their experiences.

Learning from and with others

Communities of practices and of learning are an essential element of all apprenticeships (Lave and Wenger, 1991; Fuller and Unwin, 2008). In some larger workplaces there will be a number of apprentices, where in a small business there might be just one. But even if the apprentice is alone she or he will necessarily be learning and working with others. Such collaborative learning comes naturally to apprentices. Colleges, training providers and employers can all facilitate the process of learning from and with others.

Visibility of learning processes

In the last decade we have begun to understand the relationship between quality of outcomes and learning in which the processes are clearly visible to learners and teachers. John Hattie highlights four features of high quality learning in *Visible Learning* (Hattie, 2009):

- The learning arising from any learning experience is given explicit attention in the moment.
- Learners have specific, challenging, and practical, goals in mind and learning tasks are constructed with those goals in mind so that they are beneficial.
- Feedback is clear and plentiful. Learners recognise the need to welcome and listen to feedback.
- Teachers recognise learners' self-concepts and are fully able to coach them to develop improved learning dispositions and strategies.

Each of the features above requires all those involved to be actively involved in making the processes of learning visible, all being able to give a precise name to what is happening in terms of an apprentice's learning.

Learning methods that work for apprenticeships

In Figure 2, I listed methods which are appropriate to apprenticeship. Some methods will be more likely to lead to one or more our desired six outcomes. Different apprentices in varying contexts learning contrasting occupations will require those orchestrating their learning to make considered choices to ensure that the experience is of a high quality. Here the methods are grouped into nine clusters for ease of comparison.

Learning from experts – by watching and imitating, and by listening, transcribing and remembering

We learn by watching and trying first to work out what someone is doing and then to try it out ourselves. Such learning is at the heart of the medieval apprentice model, where novices watch experts, just as it is also at the heart of learning that takes place within family groups.

Practising – through trial and error, experimentation or discovery, and deliberate practice

Human beings have always learned well by experiencing things at first hand. Generally referred to as experiential learning (Kolb, 1984) this cluster of methods assumes that we learn well when we can combine both theory and practice. Trial and error responds to our natural human motivation to be curious. Deliberate practice is a particular kind of practising involving a focus on improving particular tasks, (Ericsson, 2008).

Hands-on – by making, by drafting and by sketching

If writing about and talking about skills and knowledge is the default way of operating in general 'academic' subjects, hands-on learning is its parallel default setting in vocational education. Of course not all apprenticeships involve physically making things, but 'hands-on' has a more general meaning here implying that the learning is 'first-hand' wherever possible.

Feedback for learning - using assessment for learning approaches, through conversation, by reflecting, and by teaching and helping others

Feedback for learning is any communication in which emphasis is on understanding and improving the processes of learning. Feedback is information provided by someone to a learner on an aspect of their performance and is essential to all kinds of learning. Feedback is seldom neutral, providing, as it does, information about the values and attitudes of the feedback giver as well as about the person or task. John Hattie and Helen Timperley (2007) have helped us to see that there are essentially three core questions informing effective feedback: Where am I going? How am I doing? Where to next?

One-to-one - by being coached and by being mentored

One-to-one interactions enable apprentices to develop the right attitudes, knowledge and skills in the context of a trusted relationship and where the focus is

on them as an individual learner. Coaching is where two individuals meet regularly to reflect on progress and work on aspects of performance. Mentoring, also a relationship between two people, tends to focus on career transitions and progression and is normally provided by a more experienced and expert worker.

Real-world learning – by real-world problem solving, through personal or collaborative enquiry, and by thinking critically and producing knowledge

Real-world learning recognizes that the workplace is more like the real world than a classroom. In the real world you encounter challenges, ask and answer questions, engage your critical faculties and use your creativity or nous to solve problems. Many apprentices choose the route precisely because it appears to offer the prospect of real-world learning. Real-world problem solving requires apprentices to be able to identify problems and have a range of strategies to find solutions, both working as an individual and in a team, thinking critically as they do so.

Against the clock – by competing, through simulation and role play, and through games

Learning against the clock is real and important in the sense that, in any workplace, deadlines will be important. But, by contrast, really deep learning transcends time, inviting engagement which is more than timetabled lessons or sessions. Apprenticeship learning is, by definition, a kind of learning against the clock as the apprenticeship has a specified overall time and within that, specified learning hours. Simulations and games provide opportunities for apprentices to explore contexts which otherwise would not be available to them. Constructive competition is increasingly being seen as a way of developing the skills of apprentices, especially those most skilled.

Online - through virtual environments and, seamlessly, blending virtual with face to face.

Online learning, unleashing the power of the internet is growing in importance and sophistication. As a cluster of methods, 'online' sits apart from the others we have listed so far, being a means of delivering many of the other methods. For example, learners do not learn simply by 'being online'. They learn through 'watching' while online, or 'thinking critically' while online.

Anytime – on the fly

This last category is a simple reminder that much of what apprentices learn is not planned, stressing instead the need for them to be ready to learn. On the fly learning is unplanned and informal, the result of an unexpected occurrence from which something can be gleaned. Sometimes it is these on the fly moments – an unexpected conversation with a visitor, equipment which does not work and forces a rethink, a chance encounter, an exchange on social media – which provide apprentices with useful know-how.

A yawning gap between rhetoric and reality – some conclusions

Having a real understanding of the learning methods described above is critically important for all designers of apprenticeships. The blend of methods which is chosen is, de facto, the pedagogy of a particular apprenticeship. If we are really wanting to develop world-class apprenticeships in England we need to develop a rich apprenticeship pedagogy which unequivocally aims to deliver the six desired outcomes with which this chapter began. This, in turn, requires a debate about the pedagogy of apprenticeship between employers, providers and researchers within and across sectors to identify best practices. As a consequence we can develop accessible guidance for employers and providers about the pedagogy of apprenticeship. If government is serious about developing high-quality apprenticeships, it needs to ensure that its documents about apprenticeship include explicit reference to teaching and learning.

REFERENCES

Apprenticeship Frameworks Online. (2014) *Frameworks Library:* **www.afo.sscalliance.org**

BIS. (2013) *The future of apprenticeships in England: implementation plan*. Department for Business, Innovation and Skills. London **www.gov.uk**

BIS. (2014) *Skills Funding Statement 2013-2016*. Department for Business, Innovation and Skills. London **www.gov.uk**

CBI. (2012) *First Steps: A new approach for our schools*. **www.cbi.org.uk**

Crawford, M. (2009) *The Case for Working With Your Hands: or Why Office Work is Bad for Us and Fixing Things Feels Good.* London: The Penguin Group.

Delebarre, J. (2015) *Apprenticeships Policy, England 2015.* London: House of Commons Library

Ericsson, K. A. (2008) *Deliberate Practice and Acquisition of Expert Performance: A general overview.* Academic Emergency Medicine 15(11): 988-994

Fuller, A, and Unwin, L. (2008) *Towards Expansive Apprenticeships: A commentary by the Teaching and Learning Research Programme.* London: TLRP

Hattie, J. (2009) *Visible Learning: A synthesis of over 800 meta-analyses relating to achievement.* Abingdon: Routledge

Hattie, J. and Timperley, H. (2007) 'The Power of Feedback', *Review of Educational Research* 77(1): 81-112

Kolb, D. (1984) *Experiential Learning: Experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice Hall

Lave, J. and Wenger, E. (1991) *Situated Learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press

Lucas, B., Spencer, E., and Claxton, G. (2012) *How to Teach Vocational Education: A theory of vocational pedagogy.* London: City & Guilds

Lucas, B. and Spencer, E. (2015) *Remaking Apprenticeships: powerful learning for work and life.* London: City & Guilds

McLoughlin, F. (2013) *It's About Work: Excellent adult vocational educational teaching and learning*. London: CAVTL

Ofsted. (2010) *Overview: The successful training of apprentices: key steps.* www.ofsted.gov.uk

Richard, D. (2012) *The Richard Review of Apprenticeships.* London: Department for Business, Innovation and Skills

Rose, M. (2004) *The Mind at Work: Valuing the intelligence of the American worker.* London: Penguin Books Ltd

Sennett, R. (2009) *The Craftsman.* London: Penguin Books

Shulman, L. (2005) 'Signature pedagogies in the professions', *Daedalus* 134 (3): 52-59.